

T News Letter **TDARS**

TELFORD AND DISTRICT AMATEUR RADIO SOCIETY

www.TDARS.org.uk

FOUNDED 1969

www.TelfordHamfest.co.uk

Issue 287

Jan/Feb 2019

www.TDARS.org.uk

Programme

www.telfordhamfest.org.uk

- January 16** **Committee Meeting—discuss Forum outcomes.—GX3ZME OTA**
- January 23** **Winter Projects: Members' Update #2**
- January 30** **Surplus Sale for Members' equipment**
- February 6** **Committee Meeting—Club Call GX3ZME On-The-Air**
- February 13** **Social evening shared with the Bowls Club next door. 7:30pm**
- February 20** **Ununs and Baluns at HF and VHF. Brian G6UDX, Martyn G3UKV**
- February 27** **Under-a-Fiver Construction Competition. Members choose the winner!**
- March 6** **Committee Meeting—Club Call GX3ZME On-The-Air**
- March 13** **Main Construction Competition. Bring along your pet winter project**
- March 20** **Antenna Building with MMANA Software. Paul M0PLA demonstrates**
- March 27** **Annual General Meeting**
- April 3** **Committee Meeting—Club Call GX3ZME On-The-Air**
- April 10** **Contest, Portable and Marconi (IMD) planning for 2019**
- April 17** **Workshop Stations session.**
- April 24** **Speaker—Dave Wilson M0OBW, President RSGB (Very busy man !)**
- April 26-28** **International Marconi Day (27th) at Tywyn, Wales**

For Amateur Radio Exam Training—enquiries to Mike G3JKX (01952 299677)
For Morse Training and Morse Proficiency Tests Martyn G3UKV or Eric M0KZB.
For Equipment Loans & Returns contact Don M0TBQ.

Radio Amateur Exams- Latest: www.tdars.org.uk/html/training.html

VILLAGE HALL, MALTHOUSE BANK, LITTLE WENLOCK, TELFORD, SHROPSHIRE. TF6 5BG

Editorial

The GB18YOTA station which we established at the end of December at the 2nd Wellington Scouts' HQ in Wellington went off smoothly again—many thanks to all who gave of their time and enthusiasm to make it a success; specifically David M0YDH, Simon G0UFE, Graham G7LMF, John M0JZH, Heather M0HMO, Paul M0PNN (+ Matty), Paul M0PLA, Martin 2E0TRO, John G7ACD and myself. A couple of other club members also came along to show their support—thanks. On the down side, like the previous year, we had very few 'youngsters' (for whom it was intended) come through the door, despite contact being made by Graham to every single Scout group in Shropshire before the event. As the Shropshire Star reporter (Sue Austin) put it, how do we drag them away from their smart phones and games consoles? However, Sue also made a suggestion to contact her husband who teaches at The Charlton School in Wellington as they now have "non curriculum days" from time to time, whereby we could perhaps send a delegation to demonstrate amateur radio to any interested students. My translation of Sue's idea was "If they won't come to us, we should go to them". So that's my New Year's Suggestion for the club ! Incidentally, I've scanned the Star's article and fine photo (December 31st) and printed it elsewhere in this Newsletter. A copy will also be placed in the Club's archive album. Incidentally, we had about 50 QSOs using GB18YOTA, using 80, 40, 20 and 2 metres, using phone, CW and FT8 modes.

MIV

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NEWS Update: Following last night's *Forum meeting* (Jan.9):

- New venue for Telford HamFest—see page 3.
- TDARS 50th. Anniversary. GB50TEL, (used in 2018 for Telford's celebrations,) to be requested from OfCOM, preferably permitting operation from multiple sites throughout 2019.
- Celebratory Dinner in autumn—decent venue—eg The Valley, Ironbridge.
- Celebratory Merchandise. Mugs with design similar to 25th anniv. in 1994. New '50' Badges.
- Use LW Village Field for GB50TEL operations as well as other locations.
- Other requests/suggestions incl:—
- Contest participation—eg 6m Trophy (June 15-16), VHF NFD (July 6-7), Club Calls (160m, Nov 9), SSB Field Day (HF Sept 7-8), CW NFD (HF June 1-2). UKAC (all year).
- Invite more Guest Speakers.
- Outside visits—Wednesdays or weekends.Eg MilitaryWireless (Kidderminster), Spacewatch.
- Continue summer DF Hunts.
- Workshops—say two per year—covering all aspects of Am. Radio from basics to advanced. Maybe a 'set project' covering a range of skills and topics. Possibly a whole day event.

These topics and suggestions to be discussed at the next Committee Meeting (January 16)

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TELFORD & DISTRICT AMATEUR RADIO SOCIETY : 2018-19

CHAIRMAN: Eric Arkinstall M0KZB (01743 240286)

VICE-CHAIRMAN: Martyn Vincent G3UKV (01952 255416)

SECRETARY: John Humphreys M0JZH (07824 737716)

TREASURER: Paul Athersmith M0PLA (07966 969230)

CURATOR : Don Nicholls M0TBQ (01952 411680)



NEWSLETTER EDITOR: Martyn Vincent G3UKV (01952 255416 or 07421 001166)

PUBLICITY/WEBMASTER : Dave G0CER (01630 638699 or 07971 416940)

Committee: Simon G0UFE; Brian G6UDX; Graham G7LMF; Village Hall Committee Liaison officer Martin 2E0TRO.
QSL Manager Paul M0PNN; Assist Curator: Chris 2E0EOH; Trophies/Certs: Martyn G3UKV.

Qtc: News & Information



TDARS MEETINGS EVERY WEDNESDAY AT LITTLE WENLOCK VILLAGE HALL UNLESS INDICATED OTHERWISE ON THE FRONT PAGE PROGRAMME. ROOM BOOKED FROM 7PM - 10PM. MEETINGS USUALLY COMMENCE AT 8PM

Please note: A current membership card may be required to borrow TDARS equipment. Please return borrowed equipment promptly .

The annual Telford Hamfest and G-QRP Convention will take place on Saturday/Sunday August 31st and 1st September 2019. The hot news is that after careful consideration and site visits, the Committee have decided to hold the HamFest at a new location—**Harper Adams University** near Newport. A little history of locations :-

1978-1985 Telford Town Centre (pre Sunday Trading years, organised jointly by TDARS and Salop ARS)

1986-1999 Telford Racquet Centre (re-named later as Telford Exhibition Centre and now TIC)

2000-2004 RAF Cosford site (until we were not allowed to charge admission by Government legislation)

2005 West Midlands Showground, Shrewsbury (high costs resulting in a financial flop.)

2006-2018 Enginuity Centre, Coalbrookdale (organised solely by TDARS and friends)

So the **42nd Telford HamFest** will take place at Harper Adams University on the 1st. September 2019.

Enginuity certainly had character as a Rally venue, but following the closure of Aga and access to its large car park, car parking became an issue last year, especially when visitors had to pay an extra £3 to park in Enginuity itself. A few traders have complained about poor lighting inside the 'covered bays' and the Wi-Fi very nearly let us down last September for users, including the G-QRP trans-Atlantic live episode of the Soldersmoke podcast from Bill N2CQR and Pete N6QW in California. Finally, the refreshment facilities were rather limited.

Harper Adams Uni (HAU) should overcome all these difficulties, and is about the same distance for the majority of visitors from our main catchment areas—the Midlands and North. Since HAU students do not return after their summer break until October, car parking space will be virtually unlimited. Indoor lighting is good and Wi-Fi on the site is the responsibility of one of TDARS' ex-members, so it should be A1. Catering will be provided by experienced HAU staff in a pleasant café environment right next to the main exhibition area. Finally - and perhaps the clinching reason for moving— hire costs (ie rent and tables) are considerably lower. No doubt, problems will arise—but we are an innovative and thriving club, and will make the move a success.



The **Buildathon and G-QRP Social** on Saturday evening will not be affected by the move. Steve G0FUW will again host this event, organised last year mainly by Heather MOHMO. More details to follow.

About 24 members and their partners enjoyed the **Christmas meal** at the Grazing Cow in Lawley (or as Simon re-named it—the Blazing Row). Service was a bit indifferent, with some rather inexperienced staff brought in for the Christmas rush, but we were delighted that Hazel (Jim G8UGL's widow) was able to join us, so it was a memorable social event.



telfordhams

The Sunday **TDARS 2 metre net** (144.600MHz FM, 9pm) has been poorly supported for a long time, so perhaps it's time for a change or an additional day/time. Any suggestions welcome. The **Monday and Friday meet-up on 3657 KHz +/- QRM at around 8:45am** also would welcome more callers-in to liven things up. The 4 metre nets that existed a few years ago seem to have evaporated, and GB3TF is very quiet. Any other active local nets that members could be told about in the Newsletter or TDARS Reflector ?

Martyn G3UKV continues his 80 metre **Morse Practice sessions** each Thursday morning at 9:00am on 3605 KHz. Plain text transmitted at 5, 8 and 12 wpm, followed by groups of 5 figures. The session lasts about half an hour, followed by 'callers in'.

Skumps. Star 3/12/2000
on air

Working a LEO satellite at GB18YOTA

[**Matty Bowen Jnr Op M0PNN,**

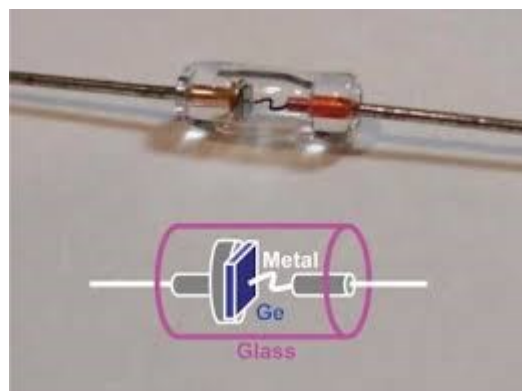
Paul M0PNN, John M0JZH]



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Mike's Piece : November 2018

Germanium (Ge) Diodes At the end of the previous article on diodes (#284, June 2018– Ed), I mentioned that Ge diodes have a lot less self capacitance than silicon diodes. This is because they are point contact diodes. They have an anode made of springy wire which touches the surface of the cathode made of n doped Ge material. This is then enclosed in a glass capsule with the wire ends protruding.



During manufacture, a sharp pulse of current is passed through this junction. This causes the Ge area in the immediate vicinity of the point contact to change into a very tiny p type area. A p/n junction now exists whose self capacitance is $< 2\text{ pf}$, making Ge diodes more suitable for use at higher frequencies. At the same time, the barrier potential is somewhere between 0.2 v to 0.4 v . This means that they will work at lower signal levels than silicon diodes, which have much higher capacitance and barrier potential (0.6 v .)

You might ask why are Ge diodes are point contact and not made like the p/n junctions of silicon diodes. If you made Ge diodes that way, because the barrier potential is a lot lower than for silicon, the depletion layer is very much thinner and the self capacitance would be huge, making them quite unsuitable for HF frequencies and above. In passing, care must be taken with all diodes that their voltage and current ratings are not exceeded. If they get too hot, you'll lose them!

73 Mike G3JKX

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From Mark Jones M1DQI: Shropshire Raynet County Controller (e-mail sent 7 December)

For those that have not already heard the sad news Our Dear Friend and RAYNET colleague Tony Pierce G0RVE sadly passed away on the 22nd November.

It will no doubt have come as a shock and will be a shock to all who knew him. I am sure we all have fond memories of Tony.

**Thanks for Newsletter input this time:
Paul M0PNN, Mike G3JKX, Graham G7LMF, Paul M0PLA**

Next edition Mar/April : 2019
Please keep it coming—contributors make the difference!

My Radio History—By Paul Bowen M0PNN / M4M

One of my earliest memories is knocking on the door of my Dads workshop to tell him tea was ready, I must have been about four or five. There was a big white speaker on the wall and strange noises emanated from it.

My mother found when sorting through some documents at home my late father's RSGB membership certificate from 1970. I don't think he was ever licensed but when I was growing up there were always valves, components and the smell of solder flux and Old Holburn in his workshop.

When I was a few years older if I was very lucky, I was allowed to play with a Collins receiver. This thing was big and heavy and glowed. "Come on I will have a cup of coffee while this thing warms up" was often said to me. The radio would spring into life and as you turned the band change knob it made a satisfying clunk; it had spiders' webs inside it and the frequency dial paper was crispy and faded with age. Like all valve radios, it seemed somehow alive rather than just an inanimate object.

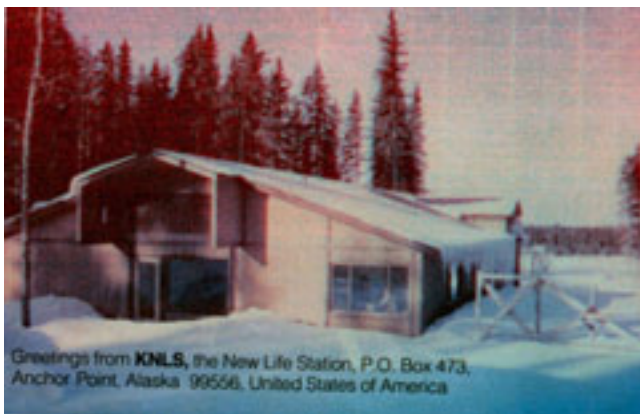
There were always radio Amateurs calling with bits of gear that needed repairing or asking advice. Whenever we visited my Grandmother in Rhayader Mid Wales, my Dad would disappear for what seemed like hours to the QTH of Bert Mills GW3LJP. "Sorry I could not get away he would not stop talking". I never did meet Mr. Mills, but often looked at his setup in his garden as we passed and thought one day.....

Around 1978 CB radios started appearing in the locality "Dad I want a CB radio" I was not allowed one. Then that day came in early 80 when the UK government finally caved into public pressure and a CB radio was to be made legal and I wanted one badly. Little did I know my father had brought two practical electronics "Rangers" as kits and had built them for David (MW0UAA) and I.

Even though he did a great job of building them they were very poor. The built-in batteries only lasted minutes plus the battery connection was poorly designed and snapped easily. A max output power of 350mW, a poor low pass filter and as wide as a barn door, but I still have them. The first antenna we used was a homemade $\frac{1}{4}$ wave ground plane that used the foil from the loft insulation as the ground plane. Within a few hours of finally putting out a signal, the knock on the door came "your CB is interfering with my TV" from the next-door neighbour. My father could not believe it we live in a high signal area you can see the TV transmitter from the back garden. That's the problem there was no antenna fitted to the TV just the coax cable on the loft floor. The AGC on the TV was wide open looking for a signal to amplify "That's the best picture we have ever had" after an antenna was fitted on the end of the coax. For the next couple of years, there was a stream of CB radio enthusiasts knocking on the door asking for their rigs to be fixed. Usually after being connected backward, blown driver and output transistors etc. Our small CB station evolved; next came a Harvard H-407 base station. The antenna was upgraded to a $\frac{1}{4}$ wave Boomerang. I can remember coming home from school and finding my father talking to Yohan Papa X-Ray from Groningen Holland. From that moment to this day I have been interested in sporadic E propagation. I could not believe it was possible to speak to someone so far away on a CB radio.



I had a Realistic DX-200 from Tandy for Christmas: Wow AM/SSB/CW with a BFO. Not a good radio but a good starter if you can use this you can use anything. With a 10m long wire, I could hear the world on shortwave. This was the during the cold war so there were hundreds of international broadcasters trying to win your political allegiance. These broadcasters sent out QSL cards to their listeners and I started to collect them.



I can remember getting strange looks in the post office as I sent reception reports to such far-flung places as Australia, New Zealand USSR, Eastern Germany, China, North Korea. I'm sure there's a file in MI16 about me somewhere. At this time, I had finished School and started work as an apprentice Groundsman.

As my interest in radio grew, so did my gear. I saved up for and bought a proper radio. To this day the Lowe HF125 is still regarded as a fine receiver.

HF 125 receiver with ZX Spectrum +3 Technical S/W

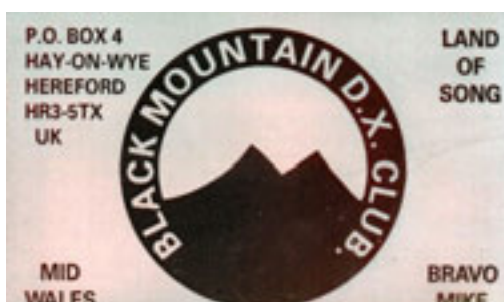
Slow Scan Tv decoded with Spectrum using RX4 128 lines.



On the first of September 1987 the CEPT band arrives giving an extra 40 legal Channels between 26.965- 27.315. This band has been legal in parts of the EU for years and during the E's season was rammed with signals from all corners of Europe and beyond. My best Dx here was Turkey. I was one of the first active on this band from the UK because a couple of weeks before it was legal my father arranged for a long-distance lorry driver to pick one up from Germany on his way home.

Fidelity 2001 with a Satcom Scan 40F

My QSL Card from that time.



The next four years were spent at college in North Wales, Preston and a sandwich year working on a Golf Course in Southern Florida. The USA being the home of CB radio it was only right I bought one. A Uniden President Jackson 12w AM/FM 21 Watts SSB 26.065-28.315 and a seven-foot Firestick the best CB antenna ever. This was the peak of Solar cycle 23 and what a cycle that was. While everyone else was playing golf (silly game) I was working the world from the car park.



You have all heard the US repeaters on 10m 29.650 etc; well I was using 10 watts FM and calling CQ on UK legal FM I was the DX. Openings were short but intense with strong signals for a few minutes at a time, quickly moving from one part of the UK to another. The phone at home in Wales was going mad with local C'bers in the Brecon area phoning up home "Is Paul in Florida ?" Oh yes, he was! My QSL card was a postcard of the Space Shuttle blasting off and was quite popular. The 11-metre band was open from before dawn until late at night and single hop into New York and Canada every day no problems. Europeans by the bucket loads, Australia and New Zealand at night—great fun.

Between college and finding a job 11-metre SSB activities continued I joined the Alfa Tango Club and continued to work the world on 11-metres.

My Alpha Tango QSL card



Around this time the Berlin wall came down. Radio Amateurs from behind the Iron Curtain had been allowed to use Amateur radio for years, but it was very very rare to hear anyone from behind the iron curtain on CB frequencies. I can remember talking to a local CB'ER on the Black Mountains and a gentleman from Poland called in who could hardly speak English. This is how he called him in "The breaker from Poland bring it on back to the highwayman square-wheeled on the Black Mountains". At that moment I can remember thinking there must be more to this radio lark and I can do better than this.

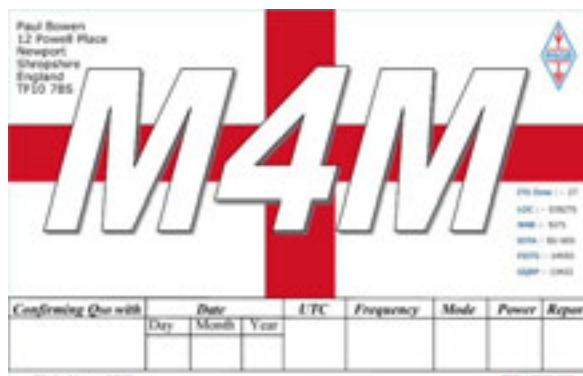
I found a Job as a Greenkeeper at Hawkstone Park near Wem and moved into a flat above a Fish and Chip shop in the High street. This seriously curtailed my operations, but I did get out portable and by this time I was using a 5/8 Silver Rod and an ERP that exceeded the Amateur Radio legal limit. I met Nicola, moved to Newport, got married and Rhiannon was born. No time for radio, but still kept all my stuff in the loft but played computer games and programming my Amiga computer 68000 processor etc.

My first computer was a Dragon 32 then a ZX Spectrum +2 then a +3. I only became interested in programming because when playing computer games, I liked to cheat. The Spectrum used a Z80 processor and once you broke the loading routine which most of the time just pointed to the start of the memory above Video you were in. Then it's just a case of looking for the number of lives and changing the value loaded at start. Better still find the routine that reduced the number of lives and deleting it :-

Ret return to point called from.

As time went on it became a battle between programmers and games hackers with very clever loading routines etc. The best ones took the value of the R or refresher register and used this to decrypt the Z80 code as it was loaded with a non-standard loading routine. The R register holds the number of machine cycles - clever stuff.

Sometimes for whatever reason, you get a wake-up call and decide to act upon it. Mine was the death of my father in 2006. I looked back at what he had done in his hobbies and interests and then looked at what I had achieved - something had to be done. There are very few times I have told Nicola what I am going to do without sounding her out- this was one of them; I know my place. I started looking up the requirements for the Foundation: no Morse, almost all bands with 10 watts, you're kidding right. I first emailed Roy Clarke G8AYD in Newport to ask about the Foundation course. Roy only did courses for Scouts etc on demand, so he suggested I contacted Mike Street which I duly did and the rest, as they say, is history.



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Mike's Piece—January 2019

Why are Logarithmic Potentiometers used for the gain (volume) control of AF amplifiers?

Believe it or not but loudness is a psychological phenomenon which does not exist in the real world except in the 'mind' of a brain. This also applies to the sensation of musical pitch; a brain is required to perceive it.

When you increase the gain of your stereo system, you are technically increasing the amplitude of vibration of air molecules by the loudspeakers. This is interpreted by our brains as a 'loudness increase'. Increases of loudness are not additive but logarithmic.

Why is this? Your hearing system is capable of discerning the sound of a mosquito flying 10 feet away (0dB) (the standard reference level of 20 micropascals) and also withstanding the 120dB sound level of a jet engine from 300 feet away or at a typical Rock Concert. This is a mere 6dB below the threshold of pain. As with RF power, each +3dB doubles the output. So a 126dB sound level is four times that of 120dB a level at which you will feel pain.

Low sound levels of sound increases are nearly proportionately heard. However the hairs in the cochlea in your inner ear only have a 50dB range and yet we can tolerate a 120dB range.(about a million to one) So to protect our hearing, compression is being applied by our hearing system. This is what engineers have to do during Heavy Metal band recordings to reduce the dynamic range. Your hearing system does this automatically.

By the way, those soft earplugs you can buy only reduce the perceived sound by -25dB and then not necessarily across the entire audible frequency range. For gun users both these and ear defenders are required.

>>>>>>>continued

Mike G3JKX

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“ Hi All

[Hope I've selected the right antenna from G7FEK Webpage – Ed]



The diagram shows a 50 Ohm coaxial cable connected to a 30 Ohm resistor and a 24 Ohm resistor in series. The 30 Ohm resistor is connected to the top of the 24 Ohm resistor. The 50 Ohm coaxial cable is connected to the bottom of the 24 Ohm resistor. The 50 Ohm coaxial cable is also connected to a 50 Ohm load at the end.



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AGENDA :

- 1) Apologies
- 2) Minutes of AGM held 28 March 2018, and Matters Arising
- 3) Chairman's Report
- 4) Treasurer's Report & presentation of accounts. 2019/20 subscription rates
- 5) Appointment of Auditors 2019/20
- 6) Election of Society Officers and committee
- 7) Presentation of Awards and Trophies

Any other items for inclusion in the Agenda must be sent in writing to the Hon. Secretary, John MOJZH, at least a week before the AGM.

A photograph showing a grassy, slightly hilly landscape. In the foreground, there's a fence line with several wooden posts, some of which are leaning or broken. The ground is covered in green grass with patches of brown, possibly from snow or frost. In the background, there's a large, flat-topped mound or hill, possibly a natural formation or a man-made structure. The sky is overcast and grey.



TDARS Multi-Band Portable Antenna (Winter Project) by Paul M0PNN

Whenever I hear the phrase multi band in relation to antenna's, I cringe. It conjures up visions of a G5RV being fed with that silly coax to ribbon cable or someone waving a wonder wand antenna telling me how once they worked the USA on one. What they do not tell you was the RX station of that QSO was using a 5 over 5 stack of mono banders at 100 feet and could hear a Nat fart in a wind tunnel.

Martyn G3UKV has always extolled the virtues of the dipole and even though it grieves me to say this, he's right. (thank you Paul—Ed). A dipole is simple, effective and easy to make. At bands above 10Mhz we can get it at least $\frac{1}{2}$ a wave length above the ground.

Part one

Single element antenna. Comprising of a linked dipole for portable use using two fiberglass fishing poles fed in the centre using an SO239 socket the poles being mounted on an aluminium plate. The plate mounted at right angles on a mast size of your choice. The linked dipole will cover 18-28MHz. Plus, a loaded single element for the 20m band.

Materials

Two Caperlan Lakeside-1 Travel 400 Telescopic Still Fishing Rods

1 SO259 Socket

4 27mm Rubber Lined P Clips

4 M6 wing Nuts

4 M6 Socket Head Bolts 15mm long

2 U-bolts for the size of mast you require

1 Aluminium Element Mount 2 feet long 4 inches wide.

Price £25-£30

Part Two

All of the above plus an extra two fishing poles and mounting plate, a boom to mast clamp and an aluminium boom. A loaded reflector element to make up a loaded beam for 20m.

I used this antenna (20m beam) in the CQ Worldwide CW contest this year single op, low power, single band.

Raw scores

World		Europe		(G) England	
67 M4M.....	42,450 (M0PNN)	36 M4M.....	42,450 (M0PNN)	1 M4M.....	42,450 (M0PNN)

Continued >>>>>>>

It works well for what it is. Don't expect Step IR, Hex beam or Opti beam performance — a two element mono band beam for 20m will cost you just short of 300 euros.
The extra expense? twice as many fishing poles, a boom and boom-to-mast clamp.
Minimum of three constructors doing this to keep postage costs down.

Price £60-£70

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“Real or Fake”, the curse of Scam devices By Graham G7LMF

Here's some advice about scam devices for sale on our favourite on-line auction house; it's a sensible check and test method, and I recommend it.

* “Always assume they are fake (they are more often than not).”

Doesn't help when you need some for a project/job I know, but the majority of RF transistors for sale on the auction sites haven't been made for quite some time now.

** Do a photo search using the photo's from the ad, quite often the same picture will show from multiple sellers, usually a sign of no good.*

** If the price seems too good to be real - well, you know the saying.*

- Search using the sellers name to see if there has been any comments outside the eBay system, good or bad, about the products from that particular seller.

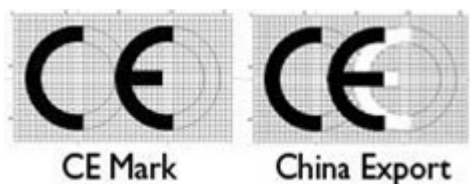
CE = 'Chinese Export'

Take a look at the “Chinese Export” marking (below): it certainly looks uncannily familiar to me! This is one to look for very carefully, an obvious rip-off of the Euro “CE” marking. Will we see USA “UL” and “CSA” marks similarly ripped off? Ditto, SEMKO in Scandinavia?

Chinese companies printing close replica of European standards logo on products

In recent years we in the UK have got used to the fact that if a product bears the CE mark, it's Kosher. The reason for this is that goods with CE marking demonstrate that they meet relevant and strict EU standards. This marking brings benefit to all in the supply chain and most notably, the consumer.

Unfortunately, there exists a very similar mark which the majority of consumers and even sellers may see as the CE mark of the European Union but actually is something completely different. This “CE” mark means “China Export” and only means that the product was manufactured in China. It is believed by various organizations that this similarity is not a chance coincidence and that this expresses an aggressive approach to sell into the European market without the right standards.



Opposite are examples of both logos. As you can see that the letters in the “China Export” logo are sitting very close to each other and bear a striking resemblance to the official European marking. This is the one to watch out for.

It wouldn't be too difficult to mistake it as the genuine Euro standard mark.

The China Export logo is not registered; it does not confirm positive test results and is placed by Chinese manufacturers arbitrarily.

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